Town of Blacksburg
Biodiesel Implementation Plan

Converting from Petrodiesel to B20 Blend Fuel

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I. Summary:

The Town of Blacksburg has been investigating the use of biodiesel in the town fleet as part of the town's Environmental Management program. This investigation has involved doing conventional research, attending workshops, contacting potential fuel suppliers, and visiting with other municipalities to discuss their first hand experiences. We have also been coordinating very closely with Virginia Tech Physical Plant department representatives who share our concern over the detrimental environmental impact of diesel emissions, have a common mission to maintain a fleet of vehicles and equipment in a high state of readiness, and have an obligation to act responsibly and prudently with taxpayer provided resources.

The National Biodiesel Board (NBB) is the national trade association representing the biodiesel industry as the coordinating body for research and development in the United States. According to the NBB, biodiesel is a clean-burning fuel containing no sulfur or aromatic compounds. It is currently produced from a number of renewable sources including soybean oil, rapseed oil, animal fats, and recycled cooking oil. These sources can be obtained from agricultural feedstocks, or recycled cooking oil or grease. The most common form of biodiesel is derived from virgin soybean oil. Biodiesel can be used in its pure form, B100 or "neat biodiesel," or blended with diesel. The most common blend fuel is B20, which contains 20 percent biodiesel blended with 80 percent diesel. A major advantage of B20 blend fuel is that it can be used in any diesel engine with little or no modification to the engine or refueling infrastructure. More information on biodiesel and the activities of the National Biodiesel Board may be found at www.biodiesel.org.

The B20 blend fuel was chosen because it offers excellent benefits (environmental impact, enhanced lubricity, and fuel system cleaning properties) and minimizes the potential drawbacks (cost, cold flow properties, fuel economy, shelf life, and material damage) associated with the higher % biodiesel blend products. The B20 blend fuel is currently available and can be provided by our current petroleum product supplier, Webb's Oil, Inc., on a "watchdog" service whereby the supplier monitors our fuel levels on a weekly basis and fills them as needed. This is consistent with the current fuel supply contract. Webb's Oil, Inc. would only need a weeks notice on the first delivery to start providing the B20 product.

The conversion from petrodiesel to B20 blend fuel will primarily be within the Public Works department where all diesel powered vehicles will be included. Parks & Recreation will participate in the B20 blend fuel conversion with one pick-up truck, two front deck mowers, two tractor mowers, and one leaf vacuum machine. Blacksburg Transit will also participate in the B20 conversion as a pilot program with one transit van and one transit bus. The majority of Fire Department and Rescue Department are either owned by Montgomery County or do not use at least one tank of fuel within 6-months. Therefore, it was decided that these vehicles would not be included in the biodiesel conversion program at this time.

A discussion on the benefits of using the B20 blend fuel together with an analysis of the potential drawbacks is provided below. This is followed by a detailed description of how we would implement the conversion from petrodiesel to the B20 blend fuel.

II. B20 Benefits, Potential Drawbacks, and Related Issues:

A. Environmental Impact: According to EPA's draft report, "A Comprehensive Analysis of Biodiesel Impacts on Exhaust Emissions" from October of 2002, soybean-based B20 reduces particulate matter by 10 percent, hydrocarbons by 21 percent, and carbon monoxide by 11 percent. Nitrogen oxide is increased by 2 percent.

B. Fuel System Cleaning Properties: The B20 blend fuel will have a detergent effect on engines and fuel systems. This will result in the removal of fuel sediment after the first usage and will require the replacement of fuel filters on all vehicles and equipment as well as at the fuel storage tank. After the initial filter replacement, the B20 blend fuel should have no detrimental impact on vehicle and equipment filter replacements. Fuel storage tank cleaning is recommended prior to the switchover to the B20 blend fuel. The Public Works department will contract out the storage tank cleaning prior to the switchover to eliminate this as a future problem source.

C. Enhanced Lubricity: Biodiesel has a much higher lubricity than low sulfur diesel and ultra low sulfur diesel, therefore the B20 blend fuel addresses the lubricity problems associated with these new diesel products when blended. As a result, additives to enhance lubricity in petrodiesel products are not required when using a B20 blend fuel.

D. Fuel Cost: At the time of the development of this report, Webb's Oil, Inc. advised that the B20 blend fuel is running on the order of 6 to 9 cents per gallon more than petrodiesel. For the Public Works department, this represents an annual cost increase of $3,120 to $4,680 based on the current demand of 52,000 gallons per year. The B20 blend fuel would be priced just as the petrodiesel is currently done (wholesale cost plus negotiated markup in cents per gallon) and is not dependent on the delivery of a full tanker of product. Therefore, like petrodiesel, the B20 blend fuel cost is subject to change throughout the year based on the wholesale cost incurred by the supplier.

E. Cold Flow Properties: The temperature at which the B20 blend fuel will freeze is from 3 to 7 degrees warmer than petrodiesel. According to Webb's Oil, Inc., they are not aware of any significant difference in the cold flow properties of B20 blend fuel as compared with the low sulfur diesel and ultra low sulfur diesel (ULSD) products currently on the market. They indicated that they would be including a diesel fuel additive that has the properties to improve cold flow to the B20 blend fuel as is currently being done for the low sulfur diesel and ULSD products. Further, they indicated that the customer can also choose to use their own cold flow product in addition to the cold flow product mixed with the B20 blend fuel by Webb's Oil, Inc.

F. Fuel Economy: Overall, conventional petrodiesel contains more energy content, and therefore provides higher fuel economy than biodiesel. According to EPA, plant-based B20 contains more energy content than animal-based B20. This energy content has a direct relation on fuel economy with plant-based biodiesel providing better fuel economy than animal-based biodiesel. EPA estimates that the fuel economy penalty for B20 is between 1.6 percent (plant-based biodiesel) - 2.15 percent (animal-based biodiesel). However, B20 has a higher cetane number than conventional diesel, which increases the engine's performance to balance some of the energy loss.

G. Shelf Life: Biodiesel has a shorter shelf life than conventional petrodiesel, with the B20 blend fuel having a shelf life of approximately 6 to 9 months. However, for most all of

the vehicles and equipment in the town fleet, this is not an issue since the product in the tank turns over far quicker than this time period. An analysis of the fuel usage in the town fleet indicates that with the exception of several Fire Department and Rescue Department vehicles and the town's emergency generators, all vehicles and equipment turn over the fuel in their tanks in well less than 6 months. In addition, there are seasonal equipment like the leaf vacuum machines and other construction equipment that sits idle for periods longer than 6 months. The seasonal equipment are not considered to be a problem because there are preventive measures that can be taken such as flushing and/or using conventional petrodiesel fuel in the last tank full at the end of the season to mitigate the shelf life issue.

H. Impact on Elastomers and Natural Rubber Compounds: There is some concern in the industry and research does indicate that 100% biodiesel can impact the condition of seals, hoses, gaskets, and wire coatings over time. However, this is also true of the new ultra low sulfur diesel products, and because of this, Original Engine Manufacturers (OEMs) are switching to materials that are also compatible with biodiesel fuels. Much less concern exists with the lower concentration biodiesel blends such as B20 and as a result OEMs are merely suggesting that these materials be monitored regularly.

I. Engine Warranties: Diesel engine companies warrant the product they make (engines) for "materials and workmanship" and if there is a problem with an engine part or with engine operation due to an error in manufacturing or assembly within the prescribed warranty period, the problem will be covered by the engine company. The OEMs, will define what fuel the engine was designed for and will recommend the use of that fuel in their owner's manuals. OEMs do not manufacturer this fuel or the fuel components and hence do not provide a warranty on fuel. If there are engine problems caused by a fuel, whether it is a petrodiesel fuel or a biodiesel fuel, these problems would not be the responsibility of the OEMs, and would be the responsibility of the fuel supplier. OEMs are prohibited by federal law of voiding their warranties based on a customer's use of biodiesel fuel without evidence showing that the engine problems were a direct result of the biodiesel fuel. Most OEMs are advising their customers that the use of biodiesel blends up to B5 (5%) is acceptable with the requirement that the pure biodiesel fuel (B100) meets the quality standards specified by the American Society of Testing and Materials standard (ASTM D 6751) prior to blending.

J. Biodiesel Standard (ASTM D 6751): The ASTM standard for diesel fuel is ASTM D975 and all diesel engines and fuel injection systems are designed around this standard. In December 2001, ASTM came out with a standard for biodiesel, ASTM D 6751, which covers pure diesel (B100), for blending with petrodiesel in levels up to 20% (B20). The Town of Blacksburg will only use B20 that is certified by the supplier as conforming to ASTM D 6751.

K. B20 Fleet Evaluation Team: The National Biodiesel Board has teamed up with vehicle companies, fuel injection manufacturers, and OEMs to form the B20 Fleet Evaluation Team (B20 FET) to develop technical guidelines on the use of biodiesel blends up to B20. This group has developed a list of recommendations for customers using B20 in their fleets entitled, Technical Recommendations for B20 Fleet Use Based on Existing Data, dated June 2005. The Town of Blacksburg will comply with the recommendations contained in the B20 FET report. It is included as Attachment A.

III. Implementation of B20 Conversion

A. Fleet Profile: The Town of Blacksburg fleet consists of a mix of diesel powered and petroleum powered vehicles and construction equipment. Most of the town diesel powered fleet is located within the Public Works department, who also operate the town garage where these vehicles are maintained and repaired. The Public Works department and the Parks & Recreation department are converting all of their diesel powered vehicles and equipment to B20 blend fuel, to include a variety of portable construction equipment and equipment used only on a seasonal basis. Other departments with diesel powered vehicles and equipment include Blacksburg Transit, the Fire Department, and the Rescue Department.

Blacksburg Transit operates the town's transit system and has a fleet of 33 diesel powered buses, 8 vans, and 2 service trucks that they maintain and repair in-house. Blacksburg Transit will participate in the B20 conversion on a pilot program basis for a period of 12 months whereby 2 transit vehicles will convert to B20 blend fuel. After this trial period, Blacksburg Transit will make a decision on their continued participation in the B20 conversion program.

A decision was made to hold off including any vehicles in the Fire Department and the Rescue Department until after the Town of Blacksburg has gained experience with the B20 blend fuel. Limiting factors in this decision are that the majority of these vehicles are either owned by Montgomery County and/or do not use at least one tank of fuel within 6-months. These vehicles will continue to use the petrodiesel fuel that will remain available at the Public Works Complex.

1. Fleet Included in B20 Conversion: The following fleet vehicles and equipment will switchover from petrodiesel fuel to the B20 blend fuel:

    a. Public Works department
        - 16 dump trucks
        - 23 pick-up trucks
        - 4 backhoes
        - 2 heavy track excavators
        - 2 loaders
        - 4 uniloaders
        - 2 bucket trucks
        - 2 pavers
        - 3 tractor mowers
        - 1 grader
        - 1 front deck mower
        - 1 roller
        - 1 sweeper
        - 1 road tractor
        - 1 gator
        - 1 sewer vacuum truck

    b. Parks & Recreation department
        - 2 tractor mowers
        - 2 front deck mowers

- 1 pick-up truck

c. Blacksburg Transit
   - 1 transit van
   - 1 transit bus

2. Portable Construction Equipment included in B20 Conversion: The following portable construction equipment and seasonal equipment will switchover from petrodiesel fuel to the B20 blend fuel:

   a. Public Works department
      - 7 leaf vacuum machines
      - 1 asphalt milling machine
      - 2 sewer washers
      - 2 air compressors
      - 2 arrow boards
      - 1 concrete mixer
      - 1 stump grinder
      - 1 wood chipper

   b. Parks & Recreation Department
      - 1 leaf vacuum machine

3. Stationary Equipment Not Included in B20 Conversion: The stationary equipment listed below will NOT switchover from petrodiesel fuel to the B20 blend fuel since under normal conditions this stationary equipment does not operate often enough to turn over a tank of fuel in 6 months. This equipment will be fueled in the same manner as is currently being done, i.e., petrodiesel fuel delivered by Public Works Technicians on an as needed basis from a service vehicle mounted diesel fuel tank.

   a. Sanitary Sewer Pump Stations
      - 21 emergency generators

   b. Water Pump Stations
      - 2 emergency generators

   c. Town Facilities
      - 4 emergency generators (includes 2 large portable generators)

B. B20 Fuel Delivery & Handling:

1. Fuel Distributor: Webb's Oil, Inc. will supply the B20 blend fuel as part of their current petroleum and diesel supply contract with the Town of Blacksburg.

2. Delivery Frequency and Quantity: The B20 blend fuel will be delivered on a "watchdog" service whereby the supplier monitors our fuel levels on a weekly basis and fills them as needed.

3. Fuel Certification: Webb's Oil, Inc. will provide written certification from the biodiesel fuel supplier that the B20 blend fuel delivered to the Town of Blacksburg is produced from 100% virgin stock soy oil conforming to ASTM D 6751.

4. Fuel Blending: The B100 will be splash blended into the Webb's Oil, Inc. delivery trucks with petrodiesel, relying on full mixing during transport to produce the B20 blend fuel.

5. Cold Weather Handling: From October 1st through March 31st Webb's Oil, Inc. will add a cold flow treatment to the B20 blend fuel at the time of splash blending in the delivery tanker.

6. B20 Fuel Storage: The B20 blend fuel will be stored in the existing 5,000 gallon above ground storage tank located at the Public Works Complex.

7. B20 Conversion Program Start-up Lead Time: Webb's Oil, Inc. will only need one weeks notice on the first delivery to start providing the B20 blend fuel.

8. B20 Fuel Testing: The Town of Blacksburg will collect fuel delivery load samples for analysis of the biodiesel blend content on each load delivered during the first 3-months of the B20 conversion, and on an as needed basis thereafter. Biodiesel blend content will be determined by infrared spectroscopy (FTIR) performed by Bently Tribology Services, located in Minden, NV at the expense of the Town of Blacksburg. The distributor will be required to modify blending procedures if biodiesel blend content levels fall outside a mutually agreed upon biodiesel blend range. One liter samples will be collected by Public Works department garage personnel and shipped to the biodiesel testing facility using DOT certified containers and packaging systems providing all of the required components for the safe transport of hazardous materials. Containers and shipping materials will be purchased from Hazmatpac, Inc., located in Philadelphia, PA.

C. Fuel Storage Tank/Dispensing System Modifications:

1. Storage Tank Conversion: The Public Works department has one 10,000 above ground fuel storage tank currently used for premium gasoline fuel and one 6,000 gallon above ground fuel storage tank currently used for petrodiesel. The 10,000 gallon tank is baffled providing two 5,000 gallon storage compartments. The 6,000 gallon tank is not baffled. The 10,000 gallon tank will be converted to diesel and the 6,000 gallon tank will be converted to premium gasoline. This will provide for a 5,000 gallon petrodiesel tank, a 5,000 gallon B20 blend fuel tank, and a 6,000 gallon premium gasoline tank. This storage tank conversion will allow all diesel fueled vehicles that currently use the Public Works Complex fuel island to continue to do so regardless of whether or not they are switching over to B20 blend fuel.

2. Fuel Dispensing System Plumbing: The 10,000 gallon fuel storage tank has two fuel dispensing pumps, one for each of the 5,000 gallon compartments. Both of these pumps currently dispense premium gasoline. In order to avoid having to switch these users to a different pump, the fuel dispensing system plumbing will be modified to draw premium gasoline from the 6,000 gallon fuel storage tank from either of these pumps. Likewise, the fuel dispensing pump currently being used for petrodiesel has two separate nozzles. The fuel dispensing system plumbing for this

pump will be modified to draw B20 blend fuel from one nozzle and petrodiesel from the other. These fuel dispensing system plumbing modifications will limit the confusion factor for all employees using the Public Works Complex fuel island.

3. Storage Tank Cleaning & Plumbing Modification Costs: All three of the fuel storage tanks will be thoroughly cleaned prior to the delivery of the first load of B20 fuel blend fuel. The Town of Blacksburg contracted out the storage tank cleaning and plumbing modifications with Four Star Petroleum, Inc. who will perform this work during the week preceding the initial B20 delivery. The fuel dispensing system at the Public Works Complex will be out of service during this one week period. The original cost estimate to perform the fuel storage tank cleaning only included cleaning the one 6,000 gallon tank and did not include any fuel dispensing plumbing modifications. The total cost to clean all three tanks and to perform the fuel dispensing system modifications will be about $7,000.

D. Temporary Fuel Supply: The Public Works department made arrangements with a local private fuel station (South Main Wilco) located a distance of approximately ¼ mile away from the Public Works Complex to provide both diesel and petroleum fuel to town vehicles during the one week period when the fuel storage tank cleaning and fuel dispensing system modifications take place. Employees will be allowed to select the "pay inside" option at the pump and use their Town of Blacksburg employee number at the register to pay for the fuel. Each transaction will need to be manually entered into the Public Works department *Fuel Master* system. As a result, each employee will be required to note the vehicle mileage on the fuel purchase receipt and provide this to the Town Garage.

E. Preventive Maintenance:

1. Fuel Dispensing Filters: The Public Works Garage will purchase additional fuel filters for the fuel dispensing pumps prior to the first delivery of B20 blend fuel. The fuel dispensing pumps and filters at the B20 fuel storage tank will be monitored on a daily basis. Because of the detergent effect of the B20 blend fuel, the fuel dispensing filters will be replaced on a weekly basis to preclude filter plugging problems at the tanks until such time as the garage personnel are satisfied that the routine preventive maintenance fuel filter check can resume.

2. Vehicle/Equipment Fuel Filters: The Public Works Garage will purchase additional fuel filters for all vehicles and equipment included in the B20 conversion prior to the first delivery of B20 blend fuel. Fuel filters are currently replaced based upon manufacturer's recommended mileage or operation time accumulation depending upon the vehicle/equipment class as part of the Public Works department fleet preventive maintenance program. Because of the detergent effect of the B20 blend fuel, these fuel filters will be replaced on a weekly basis to preclude filter plugging problems until such time as the garage personnel are satisfied that the routine preventive maintenance fuel filter check can resume.

3. Seasonal Equipment: Equipment used in seasonal operations subject to not being used for periods exceeding 6-months shall be flushed with petrodiesel fuel prior to storage. Equipment used year-round but on a limited basis during the winter months will be given a storage enhancing additive and will be monitored during these limited duty periods.

F. Monitoring & Reporting:

1. Fuel Economy: The Public Works department currently tracks fuel mileage for all vehicles filling up at the fuel pumps at the Public Works complex using *Fuel Master* software. The fuel economy for all diesel powered vehicles included in the conversion to B20 fuel will tracked and can be easily compared to the historic data for each vehicle.

2. Maintenance: The Public Works department currently tracks all maintenance expenses for all vehicles filling up at the fuel pumps at the Public Works complex using *HTE Fleet Management* system software. The maintenance record for all vehicles included in the conversion to B20 fuel will be tracked and can be easily compared to the historic data for each vehicle and each piece of equipment. Comparison of the maintenance costs from one vehicle to another is challenging given the inherent variability in maintenance costs from vehicle to vehicle.

   For the purpose of this program, maintenance costs will be tracked for costs related specifically for the engine and fuel system and total maintenance costs. Engine and fuel system parts are considered most susceptible to B20 use and include the parts listed below:

   a. Fuel Pump
   b. Fuel Pump Gasket
   c. Fuel Injector
   d. Fuel Injector O-ring
   e. Fuel Lines

   While fuel filters are normally considered engine and fuel system parts, they are tracked separately as preventive maintenance costs.

3. Road Calls: A road call is defined as maintenance performed on a vehicle or piece of equipment in the field in response to a report of a mechanical problem from the operator. The Public Works department currently tracks road calls for vehicles and equipment using a unique service code in the *HTE Fleet Management* system. Therefore, road calls for all diesel powered vehicles included in the conversion to B20 fuel will be tracked and can be easily compared to the historic data for each vehicle and piece of equipment.

4. Reporting: The Public Works department currently issues a quarterly fleet analysis report summarizing the fuel and maintenance costs incurred for all vehicles and equipment in the town fleet, with the exception of the Blacksburg Transit vehicles. Beginning with the 3rd quarter (July/August/September), a supplement to this report will be issued addressing the maintenance history of the vehicles and equipment included in the B20 fuel conversion. Data on engine/fuel system maintenance costs, total maintenance costs, and number of road calls will be included in this supplemental report. In addition, this data will be compared with historic data for each vehicle or piece of equipment to determine if there are any significant impacts on fuel economy and/or maintenance costs resulting from the B20 fuel conversion.

G. Implementation Schedule:

1. Start Date: A target start date of May, 2007 was established for the conversion from petrodiesel to B20 fuel in consideration of 1) the added challenges brought on by cooler temperatures and winter weather events, and 2) to allow sufficient time to purchase all necessary replacement fuel filters and schedule the fuel storage tank cleaning and fuel system plumbing modifications.

2. Phased B20 Conversion: In order to manage the initial fuel filter replacements resulting from the detergent effect of the B20 fuel, vehicles and equipment will be phased into the B20 conversion program over a four month period. Fourteen (14) vehicles and equipment will convert to B20 beginning in May 2007, including two (2) pieces of portable construction equipment. Sixty-seven (67) vehicles and equipment will convert to B20 during the months of June and July 2007, including eight (8) pieces of portable construction equipment. The exact timing of this second phase will depend on the frequency of the fuel filter replacements and the ability of the town garage to accommodate these filter replacements within the operational work schedules of the Public Works department crews. One (1) Blacksburg Transit van will convert to B20 fuel in June 2007 and one (1) Blacksburg Transit bus will convert to B20 fuel in August 2007. Eight (8) pieces of seasonal equipment will convert to B20 fuel in the fall of 2007. A list of vehicles and equipment included in the B20 fuel conversion program are identified in the following schedule:

B20 BLEND FUEL CONVERSION SCHEDULE				
May - 2007				
Equip #	Reference #	Description	Make	Model Year
444	AS-701	BACKHOE	JOHN DEERE	2000
452	AS-502	DUMP TRUCK	INTERNATIONAL	2001
462	SW-501	DUMP TRUCK	INTERNATIONAL	2001
450	WA-501	DUMP TRUCK	INTERNATIONAL	2001
449	WM-501	DUMP TRUCK	INTERNATIONAL	2001
702	AS-401	PICKUP	FORD	2005
562	CE-401	PICKUP	FORD	2003
419	EO-402	PICKUP	FORD	2000
466	GR-402	PICKUP	FORD	2001
517	HT-404	PICKUP	FORD	2002
467	PK-401	PICKUP	FORD	2001
776	PS-403	PICKUP	FORD	2007
579	WA-601	ASPHALT MILLING	ASPHALT ZIPPER	2003
436	SE-901	AIR COMPRESSOR	INGERSOL RAND	2001
June/July - 2007				
Equip #	Reference #	Description	Make	Model Year
428	WA-902	AIR COMPRESSOR	INGERSOL RAND	2001
8184	SW-902	ARROW BOARD	OVER LOWE	1981
9462	AS-902	ARROW BRD TRL	TRAFCON	1994
458	CE-701	BACKHOE	JCB	2001
464	SD-701	BACKHOE	CATEPILLAR	2001

677	WA-701	BACKHOE	JOHN DEERE	2004
45	WA-702	BACKHOE	KOMATSU	1984
523	WA-705	BACKHOE	VOLVO	2001
98109	HT-503	BUCKET TRUCK	CHEVROLET	1998
516	TE-401	BUCKET TRUCK	FORD	2001
57	SD-901	CONCRETE MIXER	STOW	1983
9722	AS-501	DUMP TRUCK	FORD	1997
454	AS-503	DUMP TRUCK	INTERNATIONAL	2001
9733	HT-501	DUMP TRUCK	FORD	1997
304	HT-504	DUMP TRK-WATER	INTERNATIONAL	1999
9514	MP-501	DUMP TRUCK	FORD	1995
9222	MP-502	DUMP TRUCK	INTERNATIONAL	1992
453	SD-501	DUMP TRUCK	INTERNATIONAL	2001
448	SD-502	DUMP TRUCK	INTERNATIONAL	2001
802	SE-501	DUMP TRUCK	INTERNATIONAL	2007
447	WA-502	DUMP TRUCK	INTERNATIONAL	2001
9233	WA-503	DUMP TRUCK	INTERNATIONAL	1992
451	WM-502	DUMP TRUCK	INTERNATIONAL	2001
9789	CE-808	GATOR	JOHN DEERE	1997
50	AS-702	GRADER	JOHNE DEERE	1987
9953	AS-703	LOADER	CASE	1999
455	WA-703	LOADER	JOHN DEERE	2001
430	GC-805	MOWER	TORO	1997
427	GC-806	MOWER	TORO	2000
573	PK-804	MOWER	JOHN DEERE	2003
9072	AS-602	PAVER	LEEBOY	1990
98172	AS-603	PAVER	GEHL	1998
93	BD-403	PICKUP	FORD	2000
555	BD-405	PICKUP	FORD	2002
24	EO-401	PICKUP	DODGE	1989
775	GC-401	PICKUP	FORD	2007
556	HT-402	PICKUP	FORD	2002
628	HT-403	PICKUP	FORD	2004
435	MP-401	PICKUP	FORD	2000
9811	MP-404	PICKUP	CHEVROLET	1998
566	PK-402	PICKUP	FORD	2003
790	PS-401	PICKUP	FORD	2007
26	PS-402	PICKUP	FORD	2000
703	SD-401	PICKUP	FORD	2005
742	SE-401	PICKUP	FORD	2006
522	SE-403	PICKUP	GMC	2001
590	SW-401	PICKUP	FORD	2004
788	TE-402	PICKUP	FORD	2007
787	WA-401	PICKUP	FORD	2007
697	EO-501	ROAD TRACTOR	INTERNATIONAL	2005
445	AS-604	ROLLER	CATEPILLAR	2001
582	SE-907	SEWER VACUUM	VACUUM SOURCE, INC	2003
9561	SE-904	SEWER WASHER	US JETTING	1995
695	SE-909	SEWER WASHER	US JETTING	2005

793	AS-607	SWEEPER	GMC	2005
94120	HT-901	STUMPGRINDER	VERMEER	1994
9274	GC-801	TRACTOR	FORD	1992
667	GC-802	TRACTOR	NEW HOLLAND	2004
774	GR-801	TRACTOR	JOHN DEERE	2006
461	PK-808	TRACTOR	JOHN DEERE	2006
9468	SE-801	TRACTOR	JOHN DEERE	1994
803	56	TRANSIT VAN	FORD	2006
95102	HT-702	UNILOADER	CASE	1995
96126	SD-702	UNILOADER	CASE	1996
792	SW-702	UNILOADER	JOHN DEERE	2006
422	WA-704	UNILOADER	GEHL	1999
60	HT-905	WOOD CHIPPER	WOOD CHUCK	1987
		August - 2007		
Equip #	Reference #	Description	Make	Model Year
609	4201	TRANSIT BUS*	NEW FLYER	2002
		Fall - 2007		
Equip #	Reference #	Description	Make	Model Year
777	GC-901	LEAF VAC W/HOP	GOOSSEN INDUSTRIES	2001
506	WM-901	LEAF VACUUM	ODB	2001
631	WM-902	LEAF VACUUM	ODB	2004
632	WM-903	LEAF VACUUM	ODB	2004
773	WM-904	LEAF VACUUM	GIANT VAC	2006
9383	WM-905	LEAF VACUUM	ODB	1993
9356	WM-906	LEAF VACUUM	ODB	1993
507	WM-907	LEAF VACUUM	ODB	2001

H. Public Announcement: A news release announcing the B20 fuel conversion program will be issued jointly by the Town of Blacksburg and Virginia Tech representatives in April around the time of Earth Day/Arbor Day.

I. Community Awareness: All vehicles and equipment included in the B20 conversion program will be identified as being powered with biodiesel fuel. This identification will be in the form of a magnet, a bumper sticker, or a stencil.